

MEMORANDUM

To: Members of Committee of the Whole

From: Erin Mahoney, M. Eng.
Commissioner of Environmental Services

Date: February 19, 2021

Re: Town of East Gwillimbury Holland Landing Lagoons Update

The following provides Committee of the Whole and Council with an update on the Holland Landing Lagoons in the Town of East Gwillimbury along with information related to their current operation and future decommissioning. This information is provided in response to a motion carried on January 28, 2021, that Council direct staff to bring back a further report regarding the condition and potential decommissioning of the sewage lagoons facility in the Town of East Gwillimbury.

Holland Landing Lagoons background and performance

The Holland Landing Lagoons (the Lagoons) have four sewage lagoon cells, originally constructed in the mid 1970's with a rated capacity of 1,364 m³/day (approximately 4,000 people) to treat municipal wastewater from the community of Holland Landing in the Town of East Gwillimbury.

These Lagoons were designed to treat and hold wastewater for approximately 180 days. Treated wastewater is discharged only during regulated discharge periods in the spring and fall to the East Holland River as follows:

- Spring discharge (3 months): April 1 to June 30
- Fall discharge (3.5 months): September 15 to December 31

The Region performs regular sampling and monitoring to maintain treatment performance of the Holland Landing Lagoons and reports to the Ministry of Environment, Conservation and Parks on a quarterly and annual basis. Reports going back to 2013 confirm that the Lagoons provide effective treatment for the environment achieving all monthly, seasonal and annual average

limits for treated wastewater as specified in the Environmental Compliance Approval for this facility.

Lagoons are a common method for wastewater treatment in North America, especially for rural communities. According to Infrastructure Canada's Core Public Infrastructure Survey in 2018, of the 553 wastewater treatment facilities in Ontario, 216 were lagoons. Of the 14 municipal wastewater treatment plants currently in the Lake Simcoe watershed, a total of three facilities, including Sunderland, Cannington and Holland Landing operate using a lagoon-based treatment process.

Holland Landing Lagoons operate in compliance with environmental objectives but have been the source of odour complaints

The closest residential property to the Holland Landing Lagoons is approximately 130 metres from the Lagoons. This is further than the minimum separation distance of 100 metres required by the Ministry of the Environment, Conservation and Parks' Design Guidelines for Sewage Works (see Attachment 1), however, odours are still experienced.

The Region has received odour complaints from the local community related to the Holland Landing Lagoons. Concerns tend to be received primarily during the spring thaw and discharge periods. Lagoon odours are typically caused by hydrogen sulfide, an odorous gas generated in lagoon cells from the treatment process. Ice cover in the winter traps the hydrogen sulfide and once the ice melts in the spring, water in the cells turns over resulting in the release of odours. The Region has operated the Lagoons using best industry practice to minimize odours. The Region received one recorded odour concern from the Lagoons in 2020 compared to previous years (zero to three recorded odour concerns each year).

Staff continue to investigate and implement operational practices and pilot projects to further mitigate odours

Over the last five years, the Region has been making a continuous effort to mitigate odours at the Holland Landing Lagoons. This involves multiple service providers to investigate odour sources and explore and evaluate mitigation technologies including both liquid and air treatment technologies. From 2015 to 2018, the Region cleaned out all four cells and removed sediment and sludge that had accumulated at the bottom which can contribute to odours.

The Region retained an engineering consultant in 2019 to review facility operation and evaluate potential solutions to minimize odour concerns. As a result, in 2020 the Region has been implementing seasonal operational changes and initiated a pilot project adding plant-based micronutrients to the Lagoons.

Seasonal operational changes allow the Region to minimize the volume of wastewater under the Lagoons' ice cover in the winter. This reduces the potential for bacteria to grow and release odours during the spring turnover. Micronutrients have been added to the wastewater entering

the Lagoons. Micronutrients stimulate growth of naturally occurring bacteria helping to reduce odorous gas generation.

The Region has also been performing ambient air monitoring at various stages of the project to measure the success of seasonal operational changes and micronutrient addition. As a result of these initiatives, in 2020 staff observed a significant reduction of odorous gas generation at the facility and fewer odour concerns were reported compared to previous years.

The Region plans to continue this operating strategy, which is showing early signs of abating odour. Improvements have been noticed especially during spring months when ice and snow are melting from the Lagoons' surface, which is typically a time of increased odour complaints. Environmental Services is planning to continue the micronutrient pilot in 2021 including ambient air monitoring. The micronutrients pilot project is scheduled to conclude by June 2022, followed by a broad-based community survey. Should these micronutrients prove effective in helping to reduce odours, staff anticipate continuation of their use, subject to approval by the Ministry of Environment, Conservation and Parks. If the current changes prove to be an effective long-term odour mitigation approach for the Region, it represents a very cost-effective solution.

The Environmental Compliance Approval for the Lagoons is required for transfer to the Water Reclamation Centre proposed in the Upper York Sewage Solutions Environmental Assessment

On July 25, 2014 the Region submitted the Upper York Sewage Solutions Individual Environmental Assessment to the Ministry of Environment, Conservation and Parks for approval. The Upper York Sewage Solutions Individual Environmental Assessment proposes a Water Reclamation Centre in the Town of East Gwillimbury to replace the existing Holland Landing Lagoons (Attachment 1).

When the Upper York Sewage Solutions Individual Environmental Assessment is approved, current explicit direction from the province is that the Holland Landing Lagoons must remain operational for the Region to transfer the Environmental Compliance Approval to the Water Reclamation Centre when commissioned (currently forecasted in 2028). At this point, to preserve the viability of the Upper York Environmental Assessment preferred solution, the Region cannot decommission the Lagoons in advance of the Water Reclamation Centre being commissioned.

Implications of Provincial decision options on Upper York Project for the Lagoons

On July 17, 2020, the Minister of Environment Conservation and Parks (Minister Yurek) sent a letter to Chairman Emmerson advising the Region that the province is considering options, including a potential southern trunk sewer, as an alternative to the preferred alternative identified by the Upper York Sewage Solutions Individual Environmental Assessment. Staff have not received any further details from the province on a Lake Ontario service alternative or on the Upper York Sewage Solutions Individual Environmental Assessment.

If the province were to direct and enact a southern alternative for growth in the Upper York service area and deny the current Upper York Sewage Solutions Individual Environmental Assessment, it would not be necessary to keep the Holland Landing Lagoons operational in compliance with Provincial direction, unless it is desired to maintain the treatment capacity.

The Region has established a Holland Landing Lagoons capacity reserve

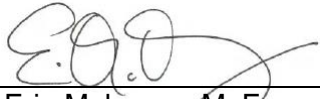
Approximately 4,000 persons capacity is currently reserved in the York Durham Sewage System to reroute wastewater flows upon decommissioning of the Holland Landing Lagoons. In 2018 a portion of this reserve capacity was borrowed to allow some development to advance prior to completing Interim Servicing Solutions for the Towns of Aurora, Newmarket and East Gwillimbury. Once the Interim Servicing Solutions are commissioned (2022/2023), the Holland Landing Lagoons reserve capacity will be restored.

If Holland Landing Lagoons decommissioning occurs when the Interim Servicing Solutions are complete, but before a Provincially selected solution is fully operational, near-term growth will be inhibited in the Towns of Aurora, Newmarket and East Gwillimbury by approximately 4,000 people until a solution is commissioned. Alternatively, the opportunity to continue use of the Lagoons and make use of the capacity reserve in the York Durham Sewage System also exists to enable growth in the communities affected to continue by 4,000 people until a servicing solution is in place.

The Region awaits direction from the province and will continue to manage the Holland Landing Lagoons

The Holland Landing Lagoons are an effective means of wastewater treatment and achieve all environmental compliance limits. The Lagoons generate odour which at times can be detected within the adjacent community. The Region is working diligently to improve the odour issues in the area. The Lagoons play an important role in the Upper York Sewage Solutions Environmental Assessment preferred alternative, however, the province has indicated they are evaluating alternatives on how to move forward. Regardless, decommissioning the Lagoons before any solution is implemented will inhibit growth potential in the Towns of Aurora, Newmarket and East Gwillimbury by 4,000 people. Staff await Provincial direction on this project and continue efforts to manage odours from the Lagoons.

For more information on this memorandum please contact Mike Rabeau, Director of Capital Planning and Delivery, Environmental Services.



Erin Mahoney, M. Eng.
Commissioner of Environmental Services



Bruce Macgregor
Chief Administrative Officer

Attachments (1)
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